


SWBAT

apply newton's second
law to problems with
friction

Sep 4-7:31 AM

SECA CP Physics
Monday 15 March 2016

Welcome!!!



PEDs with Passing

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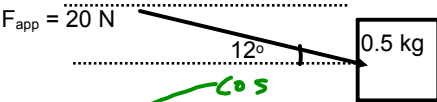
Centering
(quote)

- Show me SchoolView if you want phone in class...

HOMEWORK: Pg 73
<http://www.flippingphysics.com/second-law.html> & worksheet

Opening Activity - Quick Write: Pg 49, 69, physicsgrebe2

If I push on a block like in this diagram, what are the x & y components of that force?



$X = \text{Adj}$

$H = 20\text{ N}$

$y = \text{opp}$

\sin

$\rightarrow \frac{\text{opp}}{20} = \sin(12) \cdot 20$

$\text{opp} = \text{NEGV } -4.15\text{ N}$

DOWN

$\rightarrow \frac{\text{Adj}}{20} = \cos(12) \cdot 20$

$= 19.56\text{ N}$

Sep 7-7:04 AM

What we should have solid:

Memorize our ~~8~~ vocab cards, units, vector or not, definition, formula

Be able to answer distance vs displacement questions

Be able to make measurements of real-life motion. Know what is likely to make timing things difficult and how to get more reliable timing results

Be able to convert between miles and meters, between hours, minutes, and seconds

Be able to calculate speed = dist/time and velocity = disp/time

Know what all of the symbols in the UAM equations stand for and mean

Be able to turn a UAM word problem into a list of knowns and unknowns

Be able to pick the equation with those 4 things in it

Be able to put the knowns into that equation

(Be able to solve for the unknown)

→ PROJECTILES: v_x IS CONSTANT; $a_y = -9.81 \text{ m/s}^2$ ^{v_y CHANGES} PG 42

PG 43 TIME, Δt , CONNECTS x & y

PG 49 VECTORS INTO x & y , ADD VECTORS
SOH-CAH-TOA

PG 59 DIFFERENCE BETWEEN MASS & WEIGHT

PG 61 NET FORCE

PG 63 FREE BODY DIAGRAMS

PG 70 $F_f = \mu \cdot N$

$$F = m \cdot a$$

QW every day to review - gather responses to front board.

Dec 4-9:15 AM

Unit	Chapters	Date
Left-Side Items	Page	Right-Side Items
REFLECTION ON NOTES	2	EDITED ADAM SAUGE
HOW FAR FROM BRIDGE	4	"FORT STUEBEN"
REFLECTION ON NOTES	6	HAWK: BASE UNITS
PR: DISTANCE & DISPLACEMENT	8	HAWK: FP DISPLACEMENT
DIAGRAM & STEPS	10	TIMING & ERROR
SUMMARY OF TIMING	12	HOW TO BUILD A TABLE
PR: CONVERTING SOLUTIONS	14	HAWK: FP CONVERSIONS
PR: VELOCITY & SPEED	16	HAWK: FP SPEED & VELOCITY
SPEED WORD PROBLEMS	18	ALGEBRA FOR PHYSICS
LAB JOURNAL 10/7	20	LAB JOURNAL 10/8
...	...	HAWK: FP GRAPH POSITION
LAB JOURNAL 10/12	24	EXPERIMENT RUBRIC
26 USE FOR PROJECT	22	
OBSERVATIONS OF ORF	28	FP: INTRO TO ACC.
REVIEW FOR TEST	30	BALL ON RAMP
VECTORS, DIRECTION	32	FP: BASIC ACC EXAMPLE
PRACTICE UAM	34	FP: INTRO TO UAM
FALLING OBJECTS PACKET	36	FP: INTRO TO FREEFALL
MY FREE FALL WORD PROBLEM	38	3-ACT FALLING GLOWSTICK
Toy popper experiment	40	Free fall class solutions
Launched vs. Dropped	42	FP: INTRO TO PROJECTILE MOTION
PROJECTILE SIMULATOR	44	FP: PROJ. MOTION PROBLEM
PROJ. L PRACTICE PROBS.	46	PROJECTILES PRACTICE
OUR VECTOR PRACTICE	48	FP - VECTOR COMPONENTS
VECTOR PACKET	50	NOTES ON ADDING VECTORS
MEASURE LAUNCHER	52	NOTES ON FINDING μ & θ
OBSERVATIONS OF OBJECTS	54	RULES OF PHYSICS NOTES
NEWTON'S 1 ST LAW	58	CONFUSING QUANTITIES
WKSHJ: 2-1	60	NET FORCE
PHET FORCES IN 1d	62	
PACKET: F.B.D.	62	FREE-BODY DIAGRAMS
DATA/MEASURING CART	64	FINDING FRICTION ON CART
MORE PROJECT?	66	MYTHBUSTERS
VECTOR ADDITION COMPONENTS	68	VECTOR EXAMPLE
PHET RAMP-SLIDING	70	NORMAL VS. GRAVITY
2 ND LAW WORKSHEET	72	FP: 2 ND LAW NOTES

Sep 5-9:09 AM

Pg 73?

Youtube: "AP Physics 1: Forces 12: Static & Kinetic Friction"

(from 7:30 to the end)

\rightarrow FOUND $F_{\text{FRIC}} \text{ STATIC } \mu_s \cdot N$
 \rightarrow FOUND $F_{\text{FRIC}} \text{ KINETIC } \mu_k \cdot N$
 $\uparrow N$ BALANCED: $W = N$
 $\downarrow W$ $W = m \cdot g = N$
 $F_{\text{NET SIDEWAYS}} = m \cdot a$
 $\sum \Rightarrow \text{SUM}$
 Σ SIGMA

Mar 11-8:27 AM

Putting it all together...

$M = 0.2$
 $F_{\text{app}} = 20 \text{ N}$
 $F_{\text{norm}} = N$
 $F_{\text{fric}} = \mu F_{\text{norm}}$
 $F_{\text{app}} \cos 15^\circ = F_x$
 $20 \text{ N} \cos 15^\circ = F_x$
 $F_x = 19.3 \text{ N}$
 $20 \text{ N} \sin 15^\circ = F_y$
 $F_y = 5.2 \text{ N}$
 $F_{\text{norm}} = 5.2 \text{ N}$
 $F_{\text{fric}} = 0.2 \cdot 5.2 \text{ N} = 1.04 \text{ N}$
 $F_{\text{net}} = F_x - F_{\text{fric}} = 19.3 \text{ N} - 1.04 \text{ N} = 18.26 \text{ N}$
 $F_{\text{net}} = m \cdot a$
 $18.26 \text{ N} = 1.0 \text{ kg} \cdot a$
 $a = 18.26 \text{ m/s}^2$

Mar 14-7:43 AM